Notification No. 22612, *dated the* 9*th April* 1937.

It is hereby notified that copies of the off-prints of the Calendar for 1936-37, Vol. I. relating to the courses of study and schemes of examination for the Intermediate and the B.A. and B.Sc. (Pass and Hons.) Degree Examinations are available for sale at the Government Oriental Library, Mysore, as under :

1. Intermediate ... ... Re. 0-1-3
2. B.A. and B.Sc. ... ... Re. 0-3-0

Notification No. 22696, *dated* 10*th April* 1937.

Ordinances 23 and 30 (pages 45, 46 and 47 of the Calendar for 1936-37, Volume I), are amended as under :—

Add "Hindi" in the list of subjects between "Urdu, Parsian and Arabic" and "Mathematics" in each of the ordinances.

The Ordinances as amended will read as follows :

Ordinance 23. There shall be a Board of Studies for each of the following branches of study :—

Enumeration of Boards of studies.

English.
Kannada.
Tamil
Telugu.
Sanskrit, Pali and Prakrit.
Urdu, Persian and Arabic.
Hindi.
Mathematics.
Physics.
Chemistry.
Natural Science.
History.
Economics, Political Science and Statistics.
Mental and Moral Science.
Teaching.
Engineering and Technology.
Medicine.

Ordinance 30. There shall be Boards of Examiners for the following subjects or groups of subjects :—

Boards of Examiners.

English.
Kannada.
Tamil.
Telugu.
Sanskrit, Pali and Prakrit.
Urdu, Persian and Arabic.
Hindi.
Mathematics.
Physics.
Chemistry.
Geology.
Zoology.
Botany.
Hostory.
Economics, Political Science and Statistics.
Mental and Moral Science.
Teaching.
Engineering and Technology.
Medicine.

(Letter No. E. 3445—Uni. 80-36-17, dated the 30th March 1937, from the General Secretary to Government, Bangalore.)

Notification No. 22719, *dated* 10*th April* 1937.

The Scheme of Examination in Midwifery, Gynæcology and Pædiatrics for the Final M. B. B. S. Examination, Part II (page 331 of the Calendar for 1936-37, Vol. I) is modified as under :—

For the existing scheme, *substitute* the following :

		Marks.
"3. Midwifery, Gynæcology and Pædiatrics.		
Paper I	... 3 hours	75
Paper II	... 3 hours	75
Clinical	... 3 hours	50
Practical and *viva voce*		50"

The modification will be effective from the examination of March 1938.

(Letter No. E. 3518—Uni. 80-36-27, dated the 7th April 1937, from the General Secretary to Government, Bangalore.)

Notification No. 22701, *dated* 10*th April* 1937.

The following Abstract Proceedings of the ninety-first meeting of the Senate held at the University Union, Mysore, on the 22nd March 1937, are published for information.

PRESENT.

1. Dr. E. P. Metcalfe, D.Sc. (Lond.), F. Inst. P., *Vice-Chancellor and Chairman.*
2. Mr. N. S. Subba Rao, M.A., (Cantab.), Bar.-at-Law.
3. ,, M. Sultan Mohiyuddin, M.A., LL.B., M.Ed.
4. ,, D. V. Gundappa.
5. *Rajasevasakta* Mr. B. K. Narayana Rao, B.A., M.B.C.M., M.R.C.S., D.P.H., D.O.
6. Dr. A. Subba Rao, B.A., D.Sc. (Lond.), F.R.M.S.
7. Mr. E. G. Mc Alpine, M.A. (Edin.), Dip. Edn. (Edin.), V.D., J.P.
8. ,, J. C. Rollo, B.A. (Oxon.), M.A. (Glas.), J.P.
9. Dr. J. F. Robinson, B.A., M.D., F.A.C.S., F.R.C.S. (Edin.)
10. *Sastravaidyapravina* Mr. S. Subba Rao, B.A., M.B.C.M., L.R.C.P. (Lond.), M.R.C.S. (Eng.) and D.P.H.
11. Mr. A. R. Wadia, B.A., (Cantab.), Bar.-at-Law.
12. ,, Gulam Ahmed Kalami.
13. ,, V. Gopalaswamy Aiengar, M.A.
14. ,, A. B. Mackintosh, M.A. (Oxon.), M.A. (Glas.)
15. ,, B. M. Srikantia, M.A., B.L.
16. ,, K. S. K. Iyengar, B.A. (Cantab.)
17. Dr. M. A. Sampathkumaran, M.A., Ph.D., S.M. (Chicago.)
18. ,, B. L. Manjunath, B.A., M.Sc. (Lond.), D.Phil. (Oxon.)
19. Mr. V. L. D'Souza, B.A., B.Com. (Lond.)
20. ,, K. B. Madhava, M.A., F.R.A.S., A. I.A. (Lond.).
21. Dr. M. Siddalingaiya, M.A., B.T., Ph.D. (Columbia).
22. Mr. A. Venkateshiah, B.A., LL.B.
23. ,, M. Sesha Iyengar, M.A.
24. ,, M. Ramachandra Rao, B.A., B.L.
25. ,, G. R. Josyer, M.A., F.R.A.S.
26. ,, V. Lingappaiya, B.A., LL.B.
27. ,, D. H. Chandrasekharayya, B.A., LL.B.
28. ,, M. Ramachandra Rao Scindhya.
29. ,, G. M. Chandrasekhar, B.A., LL.B.
30. ,, D. S. Mallappa.
31. ,, H. Hombe Gowda, B.Sc., LL.B.
32. ,, B. Chamiah, B.A.
33. ,, Belur Srinivasa Iyengar, B.A., B.L.
34. Rev. R. W. Boote, B.Sc.
35. Mr. H. C. Dasappa, B.A., LL.B.
36. *Rajacharitavisarada Rao Sahib* Mr. C. Hayavadana Rao, B.A., B.L.
37. Mrs. H. S. Hensman, M.A.
38. Mr. B. Krishnaswamy Iyengar. L.C.E., M.I.E. (Ind.)
39. *Rajasevasakta Dewan Bahadur* Dr. S. Krishnaswami Aiengar, M.A., ph.D. (Honorary).
40. Mr. B. S. Puttaswami, B.A., B.L.
41. ,, A. V. Ramanathan, B.A.

42. Mr. E. K. Ramaswami, B.Sc. (Lond.), A.C.G.I.
43. Sri. K. D. Rukminiamma, B.A.
44. *Moin-ul-Vizarath* Mr. A. K. Syed Taj Peeran, B.A.
45. Mr. B. Venkatanaranappa, M.A.
46. „ M. Venkatesa Iyengar, M.A.

ABSENT.

1. Mr. Mirle N. Lakshminaranappa, B.A., LL.B.
2. „ C. Abdul Ghani, B.A., B.L.
3. *Rao Bahadur* Mr. B. Venkatesachar, M.A., F.Inst.P.
4. Mr. C. R. Narayana Rao, M.A., L.T.
5. „ L. Rama Rao, M.A., F.G.S.
6. „ K. T. Bhashyam Iyengar, B.A., B.L.
7. „ P. Subbarama Chetty.
8. „ K. Chengalaraya Reddy, B.A., B.L.
9. „ G. Channappa, B.A., LL.B.
10. *Khan Bahadur* Mr. Mahomed Abbas Khan
11. *Diwan Bahadur* Mr. N. N. Ayyangar, B.A., L.C.E., M.I.E. (Ind.)
12. Mr. Aga Mahomed Abbas Shustery.
13. *Rajasevasakta* Mr. S. Hiriyannaiya, M.A., B.L.
14. Sri. B. Indiramma, M.A.
15. Mr. J. Mahomed Imam, B.A., B.L.
16. „ S. G. Forbes, E.E., B.Sc. (E. & M.E.), M.A.I.E.E.
17. Rev. Father H. Prouvost.
18. Mr. S. Venkatesaiya, B.A., B.L.

Preliminary.

1. The Vice-Chancellor referred to the deaths of the following past members of the Senate which took place subsequent to the last meeting of the Senate:—

(i) *Rajasabhabhushana Diwan Bahadur* Mr. C. Srikantesvara Aiyar,
(ii) *Praktanavimarsa Vichakshana Rao Bahadur Mahamahopadhyaya* Mr. R. Narasimhachar.

The House recorded its deep sense of regret at the loss, the members standing.

2. The Vice-Chancellor welcomed the following new members of the Senate:—

Dr. M. Siddalingaiya, elected by and from the Academic Council.
Mr. S. G. Forbes, nominated by Government in place of Mr. F. N. Mowdawalla, resigned.

3. The Vice-Chancellor announced that in the elections to the Legislative Council and the Representative Assembly held in March 1937, from the University Constituency, the following were returned unopposed:—

Legislative Council: Mr. D. V. Gundappa.
Representative Assembly: Mr. A. Venkateshiah, B.A., LL.B.

I. Reports.

1. Annual Report for 1935-36.

Supplementing the information contained in the report, the Vice-Chancellor reported (i) that in respect of the proposal to make the Engineering School a University institution (page 8) a reference has been made to Government suggesting the appointment of a Committee, and (ii) that in respect of the recognition of the M.B.B.S. degree by the Royal College of Surgeons, England (page 11), permission has since been granted to candidates possessing certificates issued by the University of Mysore to appear for the Preliminary Fellowship Examination.

Mr. Belur Srinivasa Iyengar suggested that the Annual Report might contain examinations regarding items of variation between budget and actuals in the statement of accounts.

The report was recorded.

2. Annual Accounts for 1935-36 and Audit Report thereon.

The Vice-Chancellor announced that the audit report had not yet been formally received from the Comptroller, that an advance edition given by the Assistant Comptroller who conducted the audit was too extensive and detailed and that on receipt of the report formally from the Comptroller it will be circulated among the members and brought up for discussion at the next meeting.

The accounts were recorded.

3. Revised course of study and scheme of examination for the S. S. L. C., proposed by the S. S. L. C. Board and accepted by the Academic Council at the meeting held on the 23rd January 1937.

It was resolved that the Senate approves of the revised course of study and scheme of examination.

II Propositions.

Proposition 1.—That the budget estimates of receipts and expenditure of the University for 1937-38, as framed by the University Council in consultation with the Finance Committee be approved, embodying the following amendments :—

(i) REVISED ESTIMATES, 1936-37.

		For Rs.		*Substitute* Rs.
Page 1 A (i) Expenditure	...	12,99,059	...	12,62,609
(ii) Closing Balance	...	—1,09,678	...	—73,228
Page 5 IX Construction and Repairs				
(*b*) Major Works	...	1,30,500	...	94,050
Total carried over	...	12,98,559	...	12,62,109
Page 6 Total Brought forward	...	12,98,559	...	12,62,109
Total I to XV	..	12,99,059	..	12,62,609
Total expenditure	...	12,99,059	...	12,62,609
Closing balance	...	—1,09,678	...	—73,228

(ii) BUDGET ESTIMATES, 1937-38.

		For Rs.		*Substitute* Rs.
Page 1 1 Grant required from Government	...	13,05,264	...	12,48,414
2 Opening Balance	...	—1,09,678	...	—73,228
Total Receipts	...	14,50,886	...	14,30,486
A (i) Expenditure	...	13,76,324	...	13,55,924
Total A	..	13,86,324	...	13,65,924
Total A to D ...	...	14,50,886	...	14,30,486
Page 5 IX Construction and Repairs				
(*b*) Major Works	...	1,30,300	...	1,03,800
Total carried over	...	13,64,224	...	13,38,024
Page 6 Total Brought forward	...	13,64,224	...	13,38,024
Total I to XV	...	13,64,224	...	13,38,024
XVI Fresh grants	...	12,100	...	17,900
Total expenditure (Service heads)	...	13,76,324	...	13,55,924
Grant total	...	13,86,324	...	13,65,924

Moved by Mr. J. C. Rollo.
Seconded by Dr. M. A. Sampathkumaran.
The following observations made in the course of the discussion were noted :—
The advisability of budgeting for working expenditure and capital expenditure separately.
The possibility of reducing the scale of tuition and examination fees.
The necessity for the memo on the budget being furnished in advance.

The Budget Estimates as moved were passed.

Proposition 2.—That the Senate assent to the following amendment of Ordinance 80 (pages 63 and 64 of the Calendar for 1936-37, Vol. I) passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

Add the following as a separate paragraph :—

"The course of study in the first year class shall, in groups 1 to 6, include, in addition, a course in German which shall comprise elements of grammar and exercises in translation."

The Ordinance as amended will read as under :

"80. The course of study leading to the degree of Bachelor of Science (Hons.) shall extend over three years after the Intermediate Examination in Science, and

shall comprise one of the following optional groups of subjects consisting of a major subject and a minor subject, together with English and a Second Language :—

(1) Mathematics (major) with two out of a prescribed list of special subjects and Physics as minor subject;
(2) Physics (major) including Mathematical Physics and Chemical Physics with Mathematics as minor subject;
(3) Chemistry (major) including Plant Chemistry or Colloid and Capillary Chemistry with Physics as minor subject;
(4) Geology (major) with Chemistry as minor subject;
(5) Zoology (major) with either Botany or Chemistry as minor subject;
(6) Botany (major) with either Zoology or Chemistry as minor subject;
(7) Experimental Psychology (major) with Child Psychology, Educational Psychology and Mathematical Statistics as minor subject;
(8) Economics (major) with Advanced Statistics, Mathematical Economics and Social Measurements as minor subject,

The course of study in the first year class shall, in groups 1 to 6, include in addition a course in German which shall comprise elements of grammar and exercises in translation."

Moved by Mr. K. S. K. Iyengar.
Seconded by Mr. A. R. Wadia.

The proposition was carried.

Proposition 3.—That the Senate assent to the following amendment of Ordinance 83 (pages 64 and 65 of the Calendar for 1936-37, Vol. I) passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

Add under (*b*) the following :—

"No candidate shall be admitted to the final examination for the B.Sc. Honours degree in groups (1) to (6) of Ordinance 80 unless he is certified by the college authorities to have satisfied them in a test in translating simple scientific passages in German.

Ordinance 83 (*b*) *as amended will read as under* :—

83. (*b*) The final examination shall consist of the remaining.

No candidate shall be admitted to the final examination for the B.Sc. Honours degree in groups (1) to (6) of Ordinance 80 unless he is certified by the college authorities to have satisfied them in a test in translating simple scientific passages in German.

Moved by Mr. K. S. K. Iyengar.
Seconded by Mr. A. R. Wadia.

The proposition was carried.

Proposition 4.—That the Senate assent to the following amendment of Ordinance 83 (*c*) (page 65 of the Calendar for 1936-37, Vol. I) passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

For 'passing the Intermediate Examination' in line 4,
substitute 'admission to the First Year Honours Class.'

Ordinance 83 (*c*) *as amended will read as under* :—

"83 (*c*) A candidate for the Honours degree shall not appear for either the Preliminary or the Final Examination later than five academic years after admission to the First Year Honours Class; nor shall a candidate be permitted to undergo the complete Final Examination for Honours more than once."

Moved by Mr. J. C. Rollo.
Seconded by Mr. E. G. McAlpine.

The proposition was carried.

Proposition 5.—That the Senate assent to the following propositions passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

(*a*) That, when a thesis is offered for part of the examination for the M. Sc. degree or for the whole examination for the M.A. degree, there shall be separate minima of 40 per cent for the thesis, 40 per cent in the aggregate to the written papers taken,

40 per cent for the *Viva Voce* Examination besides the minimum of 50 per cent in the aggregate.

(*b*) That, in consequence, Ordinance 91 (page 67 of the Calendar for 1936-37, Vol. I) be amended as follows:—

Substitute the following *for* the third paragraph:—

"No candidate shall be declared to have passed the Master's Degree Examination unless he obtains not less than 40 per cent of the marks in the thesis when a thesis is offered, 40 per cent of the marks in the aggregate of the written papers, 40 per cent of the marks in the *Viva Voce* Examination and 50 per cent of the aggregate marks for the whole examination. Successful candidates who obtain 60 per cent of the total marks shall be placed in the first class in order of merit, and the other successful candidates in the second class in alphabetical order."

The Ordinance amended as above will read as under:—

"The examination for the degree of Master of Arts shall consist of four papers and *viva voce* examination, or a thesis and a *viva voce* examination; and the examination for the degree of Master of Science shall consist of four papers and a *viva voce* examination, or two papers, a thesis and a *viva voce* examination.

The written papers and the *viva voce* shall carry a maximum of 100 marks each and the thesis shall carry a maximum of 400 marks in the case of the examination for the Master's Degree in Arts and 200 marks in the case of the examination for the Master's Degree in Science.

No candidate shall be declared to have passed the Master's Degree Examination unless he obtains not less than 40 per cent of the marks in the thesis when a thesis is offered, 40 per cent of the marks in the aggregate of the written papers, 40 per cent of the marks in the *viva voce* examination, and 50 per cent of the aggregate marks for the whole examination. Successful candidates who obtain 60 per cent of the tatal marks shall be placed in the first class in order of merit, and the other successful candidates in the second class in alphabetical order."

Moved by Mr. E. G. McAlpine.
Seconded by Mr. B. M. Srikantia.

The proposition was carried.

Proposition 6.—That the Senate assent to the following amendment of Ordinance 93 (page 68 of the calendar for 1936-37, Vol. I) passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937:—

Add the following as note 2 under the Ordinance:—

Note 2.—The course in respect of 'Methods' under group A and of "Practice in Teaching" under group B shall comprise —

(1) the teaching of English;
(2) the teaching of one of the following subjects:—

History, Geography, Mathematics, Science.

Moved by Dr. M. Siddalingaiya.
Seconded by Mr. K. S. K. Iyengar.

The proposition was carried.

Proposition 7.—That the Senate assent to the revised syllabuses in Mathematics for the Intermediate, B.A. and B.Sc., degree examinations, recommended by the Board of Studies in Mathematics, passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 (**Appendix A.**)

Moved by Mr. K. B. Madhava.
Seconded by Mr. K. S. K. Iyengar.

The proposition was carried.

Proposition 8.—That the Senate assent to the detailed syllabuses in Indian Ethics under Social Philosophy and Psychology of Religion under Psychology for the B.A. Honours Degree examination, recommended by the Board of Studies in Mental and Moral Science, passed by the Academic Council at the meeting held on the 23rd January 1937 and

approved by the University Council at the meeting held on the 13th February 1937 **(Appendix B)**.

Moved by Mr. A. R. Wadia.
Seconded by Mr. N. S. Subba Rao.

The proposition was carried.

Proposition 9.—That the Senate assent to the following proposition regarding the admission of L. M. P. Diploma holders to the M. B. B. S. Degree course, passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

That provision be made for the admission of L.M.P. Diploma holders to the M.B.B.S. degree course under the following conditions :—

(i) Admission shall be granted only to such of the L.M.P. Diploma holders as have already passed or may pass the Intermediate Examination in Science with two at least of the subjects comprised in the Pre-Medical Course.

(ii) Students so admitted shall be required to undergo the Pre-Medical Course and to pass the Pre-Medical Examination.

(iii) They shall be eligible to appear for the First M.B.B.S. Examination at the end of a course of one academical year after passing the Pre-Medical Examination, to appear for the Second M.B.B.S. Examination at the end of a course of one academical year after passing the First M.B.B.S. Examination and to appear for the Final M.B.B.S. Examination at the end of a course of one academical year after passing the Second M.B.B.S. Examination.

Moved By *Sastravaidyapravina* Mr. S. Subba Rao.
Seconded by *Rajasevasakta* Mr. B. K. Narayana Rao.

The proposition was carried.

Proposition 10.—That the Senate asssent to the following consequential amendments to Ordinances passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

(Reference : The Calendar for 1936-37, Vol. I.)

Page 76. *Odinance* 111.—

Add the following proviso :—

Provided that in respect of candidates who have passed the final examination for the L.M.P. Diploma, the course shall extend over three years and shall comprise the following :—

FIRST YEAR.

Anatomy (including Embryology). One Course of lectures with dissections.
Physiology including practical Physiology and Bio-Chemistry). One course of lectures with practical work.
Organic Chemistry. One course of lectures with practical work.

SECOND YEAR.

Pathology and Bacteriology. One course of lectures with practical work.
Hygiene. One course of lectures with practical work.
Minor Surgery. One course of lectures with practical work.
Materia Medica and Pharmacology. One course of lectures with a practical course of instruction in pharmacy.
Medicine. One course of lectures.
Surgery. One course of lectures
Hospital and Clinical work. Post-mortem for three months, surgical wards for three months, medical wards for three months, out-patient department for three months.

THIRD YEAR.

Medicine. One course of lectures.
Surgery and Surgical Pathology. One course of lectures.
Venereal Diseases. One course of lectures and practical work.
Midwifery Gynæcology and Pædiatrics. One course of lectures in Midwifery and diseases of women and new born children.
Ophthalmology. One course of lectures.

Forensic Medicine. One course of lectures.
Hospital and clinical work. Medical wards for three months, surgical wards for three months, maternity wards for two months, ophthalmic wards for two months, out-patient department for one month.
Operative Surgery. One course of practical instruction.
Mental Diseases One course of lectures and demonstrations.
Vaccination. Ten demonstrations.
Fever Hospital. One month.
Clinical and Dental Surgery. One course of twelve lectures with necessary demonstrations.
Anaesthetics. Instruction in anaesthetics consisting of attendance at three lectures and the personal administration of anaesthetics in six cases.
Oto-rhino laryngology. One course of lectures and demonstrations.

Page 77. *Ordinance* 112.—

Add the following as sub-paragraph under the first paragraph :—

"Provided that a candidate who has already passed the final examination for the L.M.P. Diploma shall be permitted to appear for the First M.B.B.S. Examination at the end of a course of one academical year after passing the Pre-Medical examination, the Second M. B. B. S. Examination at the end of a course of one academical year after passing the First M.B.B.S. Examination, and the Final M.B.B.S. Examination at the end of a course of one academical year after passing the Second M.B.B.S. Examination.".

Page 78. *Ordinance* 113.—

In section (*a*) clause (ii), after 'Organic Chemistry' in line 4, *add* the following :—
"and in the case of those candidates who have passed the L.M.P. Diploma Examination, for a period of not less than one year."

In section (*a*) clause (iii), after '18 months' in line 2 *add*—
"and in the case of those who have passed the L.M.P. Diploma Examination, nine months."

Page 80. *Ordinance* 115.—

In clause (*a*) (ii) *after* 'Medical College' in line 3, *add*—
"and in the case of those who have passed the L.M.P. Diploma Examination, for not less than one year."

Moved by *Sastravaidyapravina* Mr. S. Subba Rao.
Seconded by *Rajasevasakta* Mr. B. K. Narayana Rao.
The proposition was Carried.

Proposition 11.—That the Senate assent to the following modification of the scheme of examination in Midwifery, Gynæcology and Pædiatrics for the Final M.B.B.S. Examination, Part II (page 331 of the Calendar for 1936-37, Vol. I) recommended by the Board of Studies in Medicine, passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

For the existing scheme, *substitute* the following :—

		Marks
"3. Midwifery, Gynæcology and Pædiatrics.	Paper I—3 hours ...	75
	Paper II—3 hours ..	75
	Clinical—3 hours ...	50
	Practical and *viva voce* ..	50"

Moved by *Sastravaidyapravina* Mr. S. Subba Rao.
Seconded by *Rajasevasakta* Mr. B. K. Narayana Rao.
The Proposition was Carried.

Proposition 12.—That the Senate assent to the following amendment of Ordinance 95 (pages 68 and 69 of the Calendar for 1936-37, Vol. I) passed by the Academic Council at the meeting held on the 23rd January 1937 and approved by the University Council at the meeting held on the 13th February 1937 :—

Add the following proviso —

"Provided that the names of candidates who passed in Groups A and B in different years shall be published in a separate list in alphabetical order."

[*Note.*—This is intended to supply an omission in Proposition 1 passed at the meeting of the Senate held on the 21st November 1935.]

The Ordinance as amended will read as under :—

95. No Candidate shall be declared to have passed the B.T. Degree Examination, unless he obtains not less than 40 per cent of the total marks under A and B separately with a minimum of 30 per cent in each subject. Of passed candidates, those that obtain 60 per cent or more of the total marks shall be placed in order of merit in the first class, others obtaining not less than 50 per cent in the second class likewise in order of merit, and the rest in the third class in alphabetical order.

Minima for a pass and classes.

Provided that the names of candidates who pass in Groups A and B in different years shall be published in a separate list in alphabetical order.

Moved by Dr. M. Siddalingaiya.
Seconded by Mr. E. G. McAlpine.

The proposition was carried.

Proposition 13.—That the Senate assent to the following amendment of note 2 under Ordinance 34 (Page 49 of the Calendar for 1936-37, Vol. I), passed by the University Council at the meeting held on the 12th December 1936 :—

For '1935-36' in line 3, *substitute* '1940-41.'

The note as amended will read as under :—

"Mysorean women students are exempted from payment of tuition fees in the Arts and Science College of the University and, until the end of the year 1940-41, in the Medical College and in the Medical School."

[*Note.*—The following amended form of the note was proposed at the meeting of the Senate held on the 26th November 1936 and was remitted to the University Council for further consideration :—
"Mysorean women students are exempted from payment of tuition fees in the Arts and Science Colleges of the University. Mysorean women students are exempted from payment of tuition fees in the Medical College and the Medical School until the end of the year 1940-41, subject to the proviso that those failing to obtain promotion to the next class should forfeit the concession during the period of detention."
In the form now proposed, the proviso is deleted altogether.]

Moved by *Rajasevasakta* Mr. B. K. Narayana Rao.
Seconded by *Sastravaidyapravina* Mr. S. Subba Rao.

The proposition was carried.

Proposition 13 A.—That the Senate assent to the following amendment of Ordinance 19A (page 45 of the Calendar for 1936-37, Vol. I), passed by the University Council at the meeting held on the 13th March 1937 :—

Add the following as the second sentence in the ordinance :—

"No candidate who is in default in respect of fees, library books, hostel dues or other similar dues to a University institution shall be admitted to any University Examination."

The ordinance as amended will read as under :—

19 A. No candidate who is in default in respect of fees, library books, hostel dues, or other similar dues to a University institution shall be granted a certificate of attendance. No candidate who is in default in respect of fees, library books, hostel dues or other similar dues to a University institution shall be admitted to any University Examination. The University Council shall have power to withhold the results of a candidate who may be reported subsequently to the examination to be in default in respect of fees or dues of any kind to the University or to any of the institutions, until the dues are cleared.

Moved by Mr. E. G. McAlpine.
Seconded by Dr. M. A. Sampathkumaran.

The proposition was carried.

Proposition 14.—That it be a recommendation to the University Council that the elections to the several bodies constituted under the University Regulation be held in accordance with the system of Proportional Representation by the Single Transferable Vote and the ordinances relating to the said elections be modified accordingly.

Moved by Mr. D. H. Chandrasekharayya.
Seconded by Mr. B. Chamiah.

After discussion, the proposition was put to the vote and declared lost.

Poll was then demanded.

16 voted *for* the proposition.

17 voted *against* the proposition.
5 remained neutral.

The proposition was lost.

Proposition 15.—That it be a recommendation to the University Council that a committee of officials and non-officials be constituted to investigate the present position of the University and to formulate proposals to organize it on the most efficient, useful and up to date lines.

Moved by Mr. D. H. Chandrasekharayya.
Seconded by Mr. B. Chamiah.

The proposition was lost.

Proposition 16.—That a Committee be appointed to explore and watch all possible avenues of employment, both Governmental and private, outside the Mysore State, for graduates of the Mysore University and to suggest suitable measures from time to time for giving them the necessary training which will qualify them for such posts.

Moved by Mr. M. Ramachandra Rao.
Seconded by *Rajacharitavisarada Rao Sahib* Mr. C. Hayavadana Rao.

Mr. H. C. Dasappa moved and *Moin-ul-Vizarath* Mr. A. K. Syed Taj Peeran seconded that the proposition be referred to the University Council for consideration.

The motion to refer the proposition to the University Council was carried.

Proposition 17.—That it be a recommendation to the Academic Council that a separate course of two years be instituted to enable B.A. and B.Sc. pass graduates to take the M.A. and M.Sc. degrees, respectively.

Moved by Mr. M. Ramachandra Rao.
Seconded by Mr. M. Ramachandra Rao Scindhia.

Mr. B. Venkatanaranappa Moved and Mr. E. G. McAlpine Seconded that the proposition be referred to the Academic Council.

The motion to refer the proposition to the Academic Council was carried.

Proposition 18.—That it be recommendation to the University Council that the scales of pay fixed at present for the Junior lecturers of this University not offering sufficient inducement for efficient work be raised to the level obtaining in the sister Universities of India.

Moved by Mr. M. Ramachandra Rao.
Seconded by Mr. V. Lingappaiya.

(In the course of his speech the mover suggested the revision of the grade Rs. 75-5-150 to Rs. 75-15/2-150).

Moin-ul-Vizarath Mr. A. K. Syed Taj Peeran moved and Mr. D. S. Mallappa seconded that the proposition be referred to the University Council.

The motion to refer the proposition to the University Council was carried.

Proposition 19.—That it be a recommendation to the University Council to follow definite principles with regard to the appointment of assistant examiners for the several University Examinations so that all lecturers may have their turn.

Moved by Mr. M. Ramachandra Rao.
Seconded by Mr. V. Lingappaiya.

After a brief discussion the motion was withdrawn with the permission of the House.

Proposition 20.—That it be a recommendation to the University Council that physical culture classes be made compulsory in all University classes, as the revised syllabus for the S.S.L.C. provides for compulsory physical culture classes for all High School students.

Moved by Mr. M. Ramachandra Rao.

The Vice-Chancellor reported that the University Council was actively considering the introduction of a scheme of Physical Education in the University, which will eventually involve the element of compulsion.

The proposition was not proceeded with.

Proposition 21.—That it be a recommendation to the University Council that a course of four weeks during the long vacation be made a part of the programme of the University

Extension Lectures for the benefit of those engaged in the teaching profession who have not undergone any regular training in 'Teaching'.

Moved by Mr. M. Ramachandra Rao.
Seconded by Mr. V. Lingappaiya.

Mr. J. C. Rollo moved and Dr. M. Siddalingaiya seconded that the proposition be referred to the University Council.

The motion to refer the proposition to the University Council was carried.

Conclusion.

1. The Vice-Chancellor referred to the termination in June 1937 of the membership on the Senate of the following representatives of the Legislative Council and the Representative Assembly and thanked them for their services :—

Legislative Council :	Mr. K. T. Bhashyam Iyengar
	,, D. H. Chandrasekharayya
	,, M. Ramachandra Rao Scindhia
	,, P. Subbarama Chetty.
Representative Assembly :	Mr. G. M. Chandrasekhar
	,, D. S. Mallappa
	,, H. Hombe Gowda
	,, B. Chamiah
	,, K. Chengalaraya Reddy
	,, Belur Srinivasa Iyengar
	,, G. Channappa
	Khan Bahadur Mr. Mahomed Abbas Khan.

2. The Vice-Chancellor next announced that it would be the last meeting of the Senate which he would be attending in any capacity and in bidding farewell to the members thanked them for their co-operation in the harmonious working of the University during his period as Vice-Chancellor.

Messrs. H. C. Dasappa, C. Hayavadana Rao, B. Venkatanaranappa, A. K. Syed Taj Peeran and A. Venkateshiah spoke on behalf of the Senate conveying the appreciation of Dr. Metcalfe's conduct of the meetings of the several University authorities and of the administration of the University and wished him and Mrs. Metcalfe farewell.

E. P. METCALFE,
Vice-Chancellor and Chairman.

APPENDIX A.

Revised Syllabuses in Mathematics for the Intermediate, B.A. and B Sc. degree examinations.

Intermediate Examination in Arts (Optional Mathematics).

(a) Algebra.

Ratio and proportion. Variation. Theory of Indices. Logarithms and their application to arithmetical computation. Simple Surds. Quadratic equations Theory of Quadratic Functions. Series in A.P., G.P. and H.P. Notion of convergence with illustrations from G.P. Summations involving Σn, Σn^2 and Σn^3. Arithmetico-Geometric Series. Partial Fractions (elementary). Interest and Annuities; Permutations and Combinations. Binomial Theorem for a positive integral index and easy application of the theorem for any rational index. Easy Graphs. Solution of simultaneous quadratic equations. Indeterminate equations of the first degree.

(b) Trigonometry.

Measurement of angles. Trigonometric Functions and their relations to one another. Simple Equations. Solution of Triangles. Heights and Distances in one plane. Use of Trigonometric Tables. Sine and Cosine Graphs. Addition and Multiplication Formulæ. Properties of Triangles and Circles connected with them. Inverse Trigonometric Functions. Limits and Approximations. Heights and Distances in different planes. Application of Logarithms to Trigonometric computation.

(c) & (d) Geometry (Theoretical & Practical).

(i) THEOREMS IN PLANE GEOMETRY.

1. The rectangle contained by the diagonals of a cyclic quadrilateral is equal to the sum of the rectangles contained by its opposite sides.

2. The perpendiculars from the vertices of a triangle on the opposite sides meet in a point called the orthocentre, and the distance of each vertex from the orthocentre is twice the perpendicular distance of the circumcentre from the side opposite the vertex.

3. The three medians of a triangle meet in a point and this point is a point of trisection of each median and also of the line joining the circumcentre to the orthocentre.

4. The circle through the middle point of the sides of a triangle passes also through the feet of the perpendiculars of the triangle and through the middle points of the three straight lines joining the orthocentre to the vertices of the triangle.

5. If a perpendicular drawn from the vertex of a triangle is produced to meet the circumcircle, the distance of this point of intersection from the base is equal to the distance of the orthocentre of the triangle from the base.

6. The feet of the perpendiculars drawn on the sides of a triangle from any point on the circumcircle of the triangle are collinear.

7. Geometrical theorems corresponding to the following identities:—

$$K(a+b+c\ldots) = Ka + Kb + Kc \ldots\ldots$$
$$(a \pm b)^2 = a^2 \pm 2ab + b^2.$$
$$a^2 - b^2 = (a+b)(a-b).$$
$$(a+b)^2 - (a-b)^2 = 4ab.$$
$$(a+b)^2 + (a-b)^2 = 2(a^2+b^2).$$

8. The square on a side of a triangle is greater than, equal to or less than, the sum of the squares on the other two sides, according as the angle contained by these two sides is obtuse, right, or acute. The difference in the cose of inequality is twice the rectangle contained by one of the two sides and the projection of it on the other.

9. If D is a point in the side BC of a triangle such that

$$BD = \frac{1}{n}BC,$$

then $(n-1)\,AB^2 + AC^2 = n.\,AD^2 + (1-\frac{1}{n})\,BC^2$.

10. If two chords of a circle cut one another, the rectangle contained by the segments of the one is equal to the rectangle contained by the segments of the other; and conversely, if two straight lines cut one another so that the rectangle contained by the segments of the one if equal to the rectangle contained by the segments of the other, the four extremities of the straight lines are concyclic.

11. If from a point without a circle a secant and a tangent are drawn to the circle, the rectangle contained by the whole secant and its segment external to the circle is equal to to the square on the tangent.

12. If from any point without a circle two straight lines are drawn one of which cuts the circle and the other meets it, and if the rectangle contained by the whole secant and its parts external to the circle equals the square on the line which meets the circle, this line is a tangent to the circle.

13. Definition and elementary theorems connecting antecedents and consequents.

14. A given straight line can be divided internally or externally in a given ratio at one and only one point.

15. A straight line drawn parallel to one side of a triangle cuts the other two sides produced (if necessary) proportionally; and the converse.

16. If the vertical angle of a triangle is bisected internally or externally, the bisector divides the base internally or externally into segments which have the same ratio as the other sides of the triangle; and the converse.

17. In equal circles, angles whether at the centres or at the circumferences, have the same ratio as the arcs on which they stand.

18. Triangles and parallelograms having equal altitudes are as their bases.

19. If two triangles are equiangular, their corresponding sides are proportional; and the converse.

20. If two triangles have one angles of the one equal to one angle of the other and the sides about the equal angles proportional, the triangles are similar.

21. Two triangles are similar, if the sides of the one are respectively parallel or perpendicular to the sides of the other.

22. If two triangles have two sides of the one proportional to two sides of the other and an angle in each opposite to one corresponding pair of these sides equal, the angles opposite to the other pair are either equal or supplementary.

23. If from the right angle A of a right-angled triangle ABC, AD is drawn perpendicular to BC, then (i) AD is the mean proportional between BD and DC; (ii) BA is the mean proportional between BD and BC; (iii) CA is the mean proportional between CD and CB.

24. If two triangles are similar, their corresponding lines (such as medians, altitudes, inradii, circumradii, etc.) are proportional.

25. If two triangles have one angle of the one equal to one angle of the other, their areas are proportional to the rectangles contained by the sides about these equal angles. Similarly for parallelograms having one angle of the one equal to one angle of the other.

26. Similar triangles are to one another as the squares on their corresponding sides.

27. Two similar polygons can be divided into the same number of similar triangles similarly placed; and the converse.

28. The perimeters of two similar polygons are to each other as their corresponding sides and their areas are proportional to the squares on corresponding sides.

29. In a right-angled triangle, any rectilineal figure described on the hypotenuse is equal to the sum of the similar and similarly described figures on the other two sides.

30. If four straight lines are proportional and a pair of similar rectilineal figures are similarly described on the first and the second and also a pair of similar rectilineal figures are similarly described on the third and the fourth, the figures are proportional.

31. If the vertical angle of a triangle is bisected internally by a straight line which cuts the base, the rectangle contained by the sides of the triangle equals the rectangle contained by the segments of the base together with the square on the straight line which bisects the angle.

32. If from the verticle angle of a triangle a straight line is drawn perpendicular to the base, the rectangle contained by the sides of the triangle equals the rectangle contained by the perpendicular and the diameter of its circumcircle.

(ii) SOLID GEOMETRY.

1. Any two straight lines which intersect each other, or are parallel, lie in a plane.

2. If a straight line is perpendicular to each of two intersecting straight lines at their point of intersection, it is perpendicular to the plane containing them.

3. If a straight line is perpendicular to each of three concurrent straight lines at their point of intersection, the three straight lines are in one plane.

4. Two straight lines perpendicular to the same plane are parallel; and the converse.

5. If two parallel planes are cut by a third plane, the lines of intersection are parallel.

6. If two straight lines are cut by parallel planes, they are cut proportionally.

7. If two intersecting planes are both perpendicular to a third plane, the common section of the first two is perpendicular to the third plane.

8. A straight line can be drawn perpendicular to each of two straight lines in space which do not intersect and are not parallel, and this straight line is the shortest distance between them.

9. If a solid angle is contained by three plane angles, any two of them are together greater than the third.

10. The plane angles which contain a solid angle are together less than four right angles.

(iii) PRACTICAL GEOMETRY.

Construction of the circumscribed, inscribed and escribed circles of a triangle. Medial section. Construction of regular polygons. Division of finite straight lines in a given ratio and construction of similar figures.

Construction of triangles from given data and division of triangles, quadrilaterals and polygons in a given ratio. Areas of polygons and problems relating thereto. Simple calculations relating to regular solids.

(iv) ANALYTICAL GEOMETRY.

Co-ordinates. Point dividing in a given ratio the join of two points. Centroid of the triangle in terms of the co-ordinates of the verticles. Distance between two points. Area of triangle in terms of the co-ordinates of the vertices Loci and equations. The standard forms of the equation of the straight line. Angle between two given lines. Change of origin. Length of perpendicular from a given point on a given line. Bisectors of angles between two given lines. Simple locus problems on the straight line. Equation of the circle (Standard Forms).

(Rectangular axes are assumed throughout).

(e) *Calculus.*

Ideas of explicit and implicit functions. Graphs of simple functions. Limits. The differential co-efficient. Differentiation of algebraic and trigonometric functions (including circular functions). Application to rates, errors and approximations. Equations of tangent and normal. Subtangent and subnormal. Simple problems on Maxima and Minima. Integration. Standard Forms. Method of substitution. Integrations involving algebraic and trigonometric functions. Integration by parts. Definite integrals. Simple problems on areas.

Intermediate Examination in Science.

III. ELEMENTARY MATHEMATICS.

(For candidates for I.Sc. not taking Mathematics as an Optional subject).

1. Logarithms. Ratio and Proportion. Variation. Arithmetic and Geometric Progressions.

2. Co-ordinates. Graphs. The Straight Line and the Circle. Tracing of simple curves like the Parabola. Change of Origin.

Solution of equations graphically.

The graph of the quadratic function. Nature of the roots of the quadratic equation.

3. Application of the following theorems to numerical and graphical problems (the proofs of the theorems are not expected) :—

A straight line drawn parallel to one side of a triangle divides the other two sides proportionally and conversely. Equiangular triangles have their corresponding sides proportional and converse.

Definition of similar polygons.

Two triangles are similar if two sides of one are proportional to two sides of the other, and the included angles are equal.

If a perpendicular be drawn from the vertex of a right-angle triangle on the hypotenuse, its length is a mean proportional between the segments into which the hypotenuse is divided.

Similar polygons can be divided into the same number of similar triangles.

The areas of similar polygons are proportional to the squares of their corresponding sides.

If two chords of a circle intersect at O, the rectangles contained by the segments of the chords are equal, and equal to the square of the tangent to the circle from O.

Construction for third and fourth proportionals. Mean proportional.

To draw a figure similar to a given figure on a side of given length.

4. Mensuration: Definition of a plane. Line perpendicular to a plane. Angle between two planes, two lines, a plane and a line. A plane is determined by three non-collinear points or by two intersecting (or parallel) lines.

Length of diagonal of cube or cuboid. Examples involving formulæ for area of surface and volume of the following solids: Prism, Pyramid, Cylinder, Cone, Sphere. (Proofs of the formulæ are not expected).

Great and small circles of a sphare. Latitude and Longitude.

5. Trigonometric functions. Radian measure. Heights and distances (problems involving right-angled triangles only in one plane). Graphs of trigonometric functions.

6. Statistics: Tabulation. Graphs. Averages. Measures of deviation. Correlation explained graphically. (Treatment with special reference to biological subjects is expected.)

IV. OPTIONAL MATHEMATICS.

PAPERS I AND II—Same as for the Intermediate Examination in Arts.

PAPER III—Mechanics and Mensuration.

Mechanics.—

(Using Methods of Differential and Integral Calculus.)

1. Resolution and composition of Vectors.
2. Acceleration.
3. Newton's Laws of Motion.
4. Momentum, Energy, Work.
5. Forces acting at a point.
6. Parallel Forces; Moments.

7. Equilibrium of Co-planar Forces.
8. Centre of Gravity.
9. Simple Machines.

Mensuration.—

Length of a diagonal of cube or cuboid. Examples involving formulæ of surface and volume of the following solids: Prism, Pyramid, Cylinder, Cone, Sphere. Great and small circles of a sphere. Latitude and Longitude.

TEXT BOOKS.

(Elementary Mathematics).

1. Ross; Algebra, Part II.
2. Hall and Stevens: School Geometry, Parts IV—VI.
3. Hall and Knight: Trigonometry.
4. Statistics: by Bannister.

TEXT BOOKS.

(Optional Mathematics)

1 *Algebra*: Higher Algebra by V. B. Naik and V. A. Apte (Arya Bhushan Press, Poona).

2. *Trigonometry*: Plane Trigonometry: By B. B. Bagi (Published by B. B. Bagi, Reddy Housing Society, Dharwar).

3. *Plane Geometry*: Junior Geometry for Colleges by G. A. Srinivasan and C. Krishnamachari (Longmans).

4. *Solid Geometry*: Hall and Stevens: School Geometry, Part IV only.

5. *Analytical Geometry*: B. C. Maloney: Analytical Geometry.

6. *Calculus*: Introduction to Calculus: By V. M. Gaitonde (Bombay Book Depot, Girgaon, Bombay).

7. *Mensuration*: Pierpoint: Mensuration, Parts II and III.

8. *Dynamics*: School Mechanics by C. V. Durell—Parts I and II. (G. Bell and Sons.)

B.A. (Pass) and B.Sc. (Pass.)

Analysis.

Ideas of rational irrational and complex numbers. Sequences. Limits. Addition Subtraction, Multiplication and Division theorems on limits of sequence. Monotonic sequences. Cauchy's Principle of Convergence (without proof). A monotonic sequence tends to a limit (examples and applications of the result only).

Simple comparison tests for convergence and divergence of series. D'Alembert's and Raabe's Tests (in their simpler forms). Absolute convergence. Convergence of alternating series. Multiplication theorem for absolutely convergent series. The Binomial Theorem for rational index. Multinomial Theorem. Exponential and Logarithmic series (rigorous proof for the series for log $(1+x)$ is not expected). Recurring series. Addition and multiplication theorems on determinants. Solution of simultaneous linear equations.

The fundamental relations between the roots of a polynomial equation and its co-efficients. Simple transformation of roots. Reciprocal equations. Simple properties of the roots $f(x)=0$ and $f^1(x)=0$, and their mutual relations.

Functions of a single variable. Definition of continuity. Graphical study of properties of continuous functions. Differential co-efficients. Differentials. Differentiation of various functions. Successive differentiation. Leibnitz's theorem. First and Second mean value theorems of the differential calculus. Cauchy's Mean value theorem. L'Hospital's Rule. Taylor's theorem. Simple examples of expansions by Taylor's theorem, and by the formation of linear differential equations.

Subtangent. Subnormal. Curvature of plane curves. Cartesian, polar and (p.r.) formulæ. Circle of curvature. Involutes and Evolutes. Double points of plane curves. Maxima and Minima for functions of one variable. Points of inflexion. Simple examples on partial differentiation.

Integration: Methods of integration. Reduction formulæ. The definite integral as limit of a sum (introduced geometrically). Lengths and areas of plane curves. Volumes and surfaces of revolution. Theorems of Pappus.

The Argand diagram. Addition and Multiplication of complex numbers. De Moivre's Theorem) for a rational index. Series for cos θ and sin θ in powers of θ (rigorous proof not expected. Expansion of tan $(A+B+C.....)$ in terms of tan A, tan B, etc.

Expressions for Cos $n\theta$ and Sin $n\theta$ in terms of cosines and sines of multiples of θ. Definitions of circular functions for a complex variable. Hyperbolic Functions. Principal values of the inverse circular and hyperbolic functions. Logarithm of a complex number. Simple examples of separation of real and imaginary parts. Gregory's series. Simple series for π.

Geometry.

I. PURE GEOMETRY.

Properties of circles. Pole and Polar. Coaxal Circles. Inversion. Elementary notions about projection, cross-ratios and harmonic division. Harmonic property of pole and polar of circle. The quadrilateral and quadrangle. Their harmonic properties. The property of collinearity of the middle points of the diagonals of a quadrilateral.

II. PLANE ANALYTICAL GEOMETRY.

Straight Lines. The Circle, Coaxal Cirles. The conic sections referred to their principal axes. Tangent, pole and polar chord with given middle point, pair of tangents from a point, Centre, asymptotes and axes of a conic given by the general Cartesion equation of the second degree. Tracting of conic sections. Polar equations of the straight line, circle and conic.

III. SOLID GEOMETRY.

Direction cosines, angle between two straight lines. The equation of the plane. Distance of a point from a plane. Equations of a straight line. Distance of a point from a straight line. Condition for coplanarity of two lines. Shortest distance between two lines in space.

Applied Mathematics.

Either *Dynamics, Statics and Astronomy,* **or** *General Statistics and Applications of Mathematics to Economics and Mental and Social Measurements.*

1. *Dynamics*: Addition of vectors. Angular velocity and acceleration. Areal velocity and accelertion. Relative velocity. Newton's laws of Motion. Work and Energy. Conservation of Energy and Momentum. Units and Dimensions. Motion in a straight line, under constant acceleration. Projectiles under gravity. Collision of elastic bodies. Simple harmonic motion. Combination of S.H.M.'s Tangential and Normal acceleration. The simple and conical pendulums. Motion in a vertical circle.

2. *Statics*: Moments and Couples. Conditions of equilibrium of a rigid body under coplanar forces. Laws of Friction. Problems on centre of gravity, using methods of the Calculus. Stable and unstable equilibrium. The simple Catenary.

3. *Astronomy*: The celestial sphere. Celestial co-ordinates. The Earth and its rotation. Foucault's pendulum.

The transit intrument. The Equatorial. The Sextant.

The ecliptic. Apparent path of the sun at different latitudes. Length of day. Seasons. Twilight.

Sidereal Time. Apparent and Mean time. Conversion of time. Equation of Time (rough graphical study only). Date line. The calender. Determination of geographical longitude.

Planets: Kepler's Laws. Phases of planets. Direct and Retrograde motion. Sidereal and Synodic periods. Comets and Meteors. The Moon. Phases and period. The Harvest Moon. Eclipses of the Sun and the Moon.

Atmospheric Refraction: Geocentric Parallax. Annual Parallax. Distances of Sun, Moon and Stars from the Earth. Precession, Nutation and Aberration. Stars and their classification. Variable and Binary Stars. Apparent and Absolute Magnitudes. Clusters and Nebulæ. Proper motions of Stars.

General Statistics and applications of Mathematics to Economics and Mental and Social Measurements.—

(1) Collection and classification of statistics.

(2) Graphical representation of numerical data.

(3) Calculation of central tendencies and of measures of scatter.

(4) Linear and parabolic curve fitting. Method of least squares.

(5) Measurement of relationship between two variables. Product-moment method of determining correlation coefficient.

(6) Elementary problems of sampling. (Advanced properties of the normal probability curve will not be required).

(7) Expressions for utility and margical utility. Bernoullian hypothesis. Subjective price and consumer's surplus.

(8) Curves of demand and supply. Alterations in price and output for given changes in condition of supply and demand. Numerical measures of elasticity.

(9) Efficiency of money. Increasing, constant and decreasing returns. Curves of integral and marginal supply. Effects of a small tax or bounty on production.

(10) Conditions of monopolistic production. Compromise benefit and consumers' combinations.

(11) Essentials of mental measurement. Weber's and Fechner's laws.

(12) Constants of mental measurement. Their reliability measures.

TEXT BOOKS.

RELEVANT PORTIONS OF THE FOLLOWING BOOKS.

1. Milne: Higher Algebra.
2. Osgood: First Course in Differential and Integral Calculus (Macmillan Company, New York).
3. Siddons & Hughes: Trigonometry, Parts III-IV (Cambridge University Press).
4. Askwith: Pure Geometry.
5. Loney: The Elements of Co-ordinate Geometry. Part I.
6. Bell: Co-ordinate Geometry of Three Dimensions.
7. Norris and Legge: Mechanics *via* the Calculus.
8. H. Subramania Iyer: A text book of Astronomy (Chitra Publishing House, Trivandrum).
9. Statistics: Caradog Jones: A First Course in Statistics.
10. Mathematical Economics: A. T. Bowley: Groundwork of Mathematical Economics.
11. Mental and Social Measurements: Thompson; Essentials of Mental Measurements.

APPENDIX B.

Detailed Syllabuses in Indian Ethics under Social Philosophy and Psychology of Religion under Psychology for the B. A. Honours Degree Examination.

INDIAN ETHICS.

I. Nature and scope of *dharma* as conceived in the various systems. Its relation to morality. Early moral notions like *rta* and *Satya*. Classification of *dharmas* into

(i) *Sadharana* or those common to all: Life of Virtues.

(ii) *Visesha* or those relative to particular *varnas* or classes of society and *asramas* or stages of life.

Aim and significance of the classification. Morality of Indian Social Institutions. *Nitya, naimittika, pratishiddha* and *kamya karmas*. Source of knowledge of *dharma*:

(1) Revelation (*sruti*). View of *Vidhi* as (i) a divine command and (ii) an impersonal imperative.

(2) Intuition of sages (*yogi-pratyaksha*).

(3) Practices of the wise (*sishtachara*).

(4) Reason.

II. Metaphysical background of Indian Ethics. Conception of the individual or Jiva as a transmigrating personality. Origin and history of the Karma doctrine. Its ethical basis. Free-will and Determinisim. *Samsara* and moral order.

III. Interrelation of cognition, feeling and conation. Voluntary and other forms of activity. The object of moral judgment. Analysis of will. Springs of action according to the different systems. Reason and moral action.

IV. Standard of moral judgment:

(1) Standard as Right (*Karya*): Prabhakara's view of *niyoga* and *apurva*. Duty for duty's sake.

(2) Standard as Good (*ishta*)—(i) End as present pleasure (*preyas*). Egoistic hedonism of the Charvaka. Natural and political sanctions the only deterrents. (ii) End mainly as pleasure in a future life (*svarga*). Eudæmonism of the Bhattas. (iii) End as self-realisation (*moksha*) through self-conquest. Place of asceticism in Indian Ethics. Jaina and Buddhistic schemes of discipline. Value of the doctrine of *ahimsa* or non-injury. Ideal of Bodhisattva. *Yama* and *niyama*. *Nish-kama-karma* as taught in the Gita. Importance of the teaching in the history of Hindu Ethics. *Loka-sangraha*. Bhakti in relation to ethical conduct. Different views of self-realisation.

V. The place of morality in the Indian scheme of life.

Books recommended for consultation :—

1. E. W. Hopkins: Ethics of India.
2. S. K. Maitra: Ethics of the Hindus.

PSYCHOLOGY OF RELIGION.

PART I: INTRODUCTORY—

1. Introduction: Some objections to the study of Psychology of Religion considered. The scope of the subject and methods of study. The Psychological Standpoint.

2. Definition of Religion: The difficulty of defining Religion. Universal characteristics of Religion: Objective and Subjective characteristics. Institutional and Personal Religion.

3. A brief survey of the development of religion:

(*a*) *Origins of Religion*: As an outgrowth of uncertainty—as a reaction to natural forces—as a product of metaphysical interests. Psychological sources of Primitive Religions. Origin of Religion no test of its validity.

(*b*) Belief in God and Immortality. Causes of disbelief and doubt.

4. *Cult Practice*: As an outlet to emotional life and æsthetic interests. Psychology of religious sects. Group worship. Reverence for sacred symbols. Music and chanting. Sacrifices and offerings. Crowd Psychology and revivals. The qualifications of a preacher. The value of preaching.

5. Psychological Principles: Instincts—Development of Sentiment. Conscience. The Unconscious. Conflicts. The mechanisms of transference, projection and sublimation. The devided self. Suggestibility. Psychology of belief, doubt, insight, intuition, illusion, hallucination, and errors in reasoning. Logic of the unconscious mind.

PART II: PHE DEVELOPMENT OF RELIGION IN THE INDIVIDUAL—

A. The Normal.

1. The religious development of the Child.

2. The religious development of the adolescent. Characteristic difficulties; (*a*) disposition to doubt; (*b*) tendency to be dogmatic, (*c*) excessive emotionality.

3. The normal religious development of the adult: The effective, rational and moral elements.

4. Prayer and Worship: The prompting to prayer. The objects of the prayer. The efficacy of prayer. The interpretation of prayer. Objective and subjective worship.

B. The Exceptional.

1. *Conversion*: As an awakening. Pre-conversion states. The conversion states. Types of conversion. Factors at work in conversion.

2. *Saintliness*: Characteristic of (*a*) peace of mind, (*b*) charity, (*c*) fortitude and (*d*) purity of life.

Asceticism: Chastity, poverty and obedience. The sense of sin.

3. *Mysticism*: Description and classification. Favourable conditions for the occurrence of mystic experience. The ecstasy. The value of the mystic findings. The place of mysticism.

4. *Pathology of Religion*:—Psycho-analysis and Religion. Pathological conversions. Sadistic components.

PART III—CONCLUSION—

1. Summary of Religious Characteristics. Uneasiness and deliverance. Meaning and purpose of Religion:

2. Religion and Morality. Religion and the State. Religion and Science.

3. The Future of Religion.

TEXT-BOOKS RECOMMENDED FOR STUDY.

1. Josey C. C.: The Psychology of Religion (Macmillan).
2. Pratt J. B.: The Religious Consciousness (Macmillan).

BOOKS RECOMMENDED FOR REFERENCE.

1. Thouless R. H.: An Introduction to the Psychology of Religion (pp. 102-186).
2. Ames E. S.; The Psychology of Religious Experience (pp. 33-116).
3. James W.: Varieties of Religious Experience (pp. 259-429).
4. Sante De Sanctis: Religious Conversion (pp. 27-127).
5. Leuba J. H.: Psychology of Religious Mysticism (pp. 1-46 and 191-299).

By Order,

V. GOPALASWAMI AIENGAR,
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